

gency of the mill to run endwise, being so severe that these guide-rollers were quickly worn out; the Abbé Company suggested to us, before our first mill was installed, that it was possible to cant the friction-rollers upon which the tire moves (and which constitute the support of the mill) in such a way as to cause the main tube to go in either direction longitudinally, and that by delicate adjustment of this canting, it should be possible to confine the mill entirely to one position without its bearing unduly hard on either of the guide rollers. We experimented with this and within the first day or two after the mill was started we found it possible by this adjustment to cause the main tube to 'float' entirely free on its supporting rollers without touching either of the guide-rollers at all, and the mill ran for three months at one time without touching either guide-roller, and normally it hardly touches them once a day.

The silix lining of the mills has given good satisfaction, the first lining running eight months before it had to be replaced, though at the end of about six months, three or four defective blocks were replaced, with a two days' shut-down.

A great deal depends apparently upon the truth of the supporting tires and the homogeneity of the material composing it, because if in these tires the slightest irregularity occurs, either as an original defect or as the result of operation, bumping would rapidly ensue, which would cause the destruction of the mill and perhaps its foundations. So true is this that we found on starting the first mill, that a film of $\frac{1}{16}$ of an inch of sand, which had accumulated on certain oily spots on the tire, caused violent bumping, until the mill was stopped and the ring tire carefully cleaned off. We keep these tires at all times carefully cleaned and a little oil is put on the surface of the tire once or twice a day. Since the tires were first cleaned, there has not been the faintest bump or vibration evident about either mill, the mills running as quietly and smoothly as possible. The mills are kept filled slightly above centre with pebbles, the pebble wear being approximately $\frac{1}{4}$ lb. per ton of ore treated; silix linings wear eight months; power to start the mill, about 60 h.p., which immediately drops to 43 h.p. as soon as at running speed.

Trusting that the above data may be of interest to some of your readers.

Guanajuato, Mexico, July 14.

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